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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,622	12/17/2003	Manwinder Singh	4320-532	4058

1059 7590 12/06/2004

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EXAMINER

MENON, KRISHNAN S

ART UNIT PAPER NUMBER

1723

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/736,622

Applicant(s)

SINGH ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Claims 1-7 are pending after the RCE.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1,2 and 5 - 7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 01-119397 A.

Claim 1: JP teaches a reactor for filtering water comprising (see English abstract and figures):

- (a) one or more modules of filtering membranes (5) located within a tank (1);
- (b) a source of transmembrane pressure to the membranes for withdrawing a permeate from the insides of the immersed membranes (P at 8),
- (c) an aeration system operable to supply bubbles to the tank to inhibit fouling of the membranes (2,3),
- (d) a feed inlet for introducing feed water to the tank (see figures);
- (e) a retentate outlet for removing retentate from the tank (10);
- (f) a gas recirculation system to collect one or more gases liberated from feed water in the tank and return the collected gases to the aeration system (2,3 and the recirculation line in fig 1 and 3). Gas recirculation system has an inlet from and outlet to the

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atmosphere – see fig 3 and the English abstract which teaches that part of the generated gas is fed to the diffuser 2 via blower 3.

Claim 2: lid for the tank – see figures 1 and 3 which show the tank 1 schematically as closed. The tank remains in communication with the atmosphere through a space between the lid and the tank – fig 3 shows the decanting of the retentate by a weir at line 10, which requires a gap. Transmembrane pressure is applied by suction – see pump at 8.

Claim 5: the gas inlet or exhaust permit the percentage of liberated gases collected to be varied – this is a functional limitation in an apparatus claim. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The partial recycle of the gases in the ref also implies this limitation.

Claim 6: aeration system liberates carbon dioxide and the system is configured to return 80% of the carbon dioxide: functional limitation - In re Schreiber, etc.

Claim 7: One of the inlet or the outlet – in this case the retentate outlet is provided by the space between the lid and the tank. The space also can be the outlet for the gases – see figures.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative under 35 USC 103(a) as being unpatentable over Ishida et al (US 5,437,787).

Claim 1: Ishida teaches a reactor for filtering water comprising (Fig 1):

- (a) one or more modules of filtering membranes (8) located within a tank (1);
- (b) a source of transmembrane pressure to the membranes for withdrawing a permeate from the insides of the immersed membranes (P at 14),
- (c) an aeration system operable to supply bubbles to the tank to inhibit fouling of the membranes (16),
- (d) a feed inlet for introducing feed water to the tank (3);
- (e) a retentate outlet for removing retentate from the tank – inherent in the circulation/regeneration line at 21;
- (f) a gas recirculation system to collect one or more gases liberated from feed water in the tank and return the collected gases to the aeration system (16,17,18 and 19). Re the gas recirculation system having an inlet from and outlet to the atmosphere – inherent, even if not physically shown because col 4 lines 4-5 teaches that fresh air may be fed in, which requires excess air to be let out too. The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under

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35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983).

Claim 3: lid substantially sealed – col 3 line 16.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'397 in view of Key et al (US 4,132,637).

JP teaches a reactor with the recirculating gas system and the immersed membrane system as given in claim 1 rejection above. Claim 4 adds the further limitation of a gas dryer to dry the gases before entering a blower in the gas recirculating system, which JP does not teach. Key teaches a gas recirculating system (fig 3) having a dryer (64) and compressor (38) for recycling gases in a waste treatment system. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Key in the teaching of JP for the gas recycle system to recycle the

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gases of JP for a more efficient use of the ozonation gases if one would use the JP apparatus for activated sludge wastewater treatment. (see Key col 6 lines 5-20).

### ***Response to Arguments***

Arguments moot – new grounds for rejection because of applicants' amendment of the claims.

### ***Conclusion***

This action is after an RCE, and is made non-final because of the new grounds for rejection of applicants' amended claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon  
Patent Examiner

  
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